REMARKS

The office action of July 5, 2005, has been carefully considered.

It is noted that claims 1-5 are further rejected under 35 U.S.C. 102(b) over JP 11207442.

In view of the Examiner's rejections of the claims, applicant has amended claim 1.

It is respectfully submitted that the claims presently on file differ essentially and in an unobvious, highly advantageous manner from the constructions disclosed in the reference.

Turning now to the reference, it can be seen that JP 11207442 discloses a mold in continuous casting equipment and a casting method using it. In the presently claimed invention the local heat-transfer cooling channel surfaces are adapted varyingly via geometric designs of the heat-transfer surface areas of a cooling channel or of a group of cooling channels in shape, cross-sectional area, circumference, boundary surface properties, and orientation relative to the contact surface to the local

development of the heat flux density and/or temperature of the contact surface in the casting operation. Such a construction is not disclosed by the reference. Figure 6 of the present application shows the technical background of the invention. The figure shows the heat flux density q_{max} as a function of the height of the mold in a bordered region below the molten metal level. Figure 7 shows the temperature curve T as a function of mold height, with a maximum temperature T_{max} within the region below the molten metal level. The depth R of the grooves in the cooling channel relative to the height of the mold is shown in Figure 7 with the corresponding path of the temperature curve T, which is already to a great degree matched to the path of the heat flux density q in Figure 6. This is discussed in the paragraph beginning on line 5 of page 19 of the application, as follows: "the temperature curve T … shows a temperature maximum T_{max} between points 14 and 15 with R_{max} within the region 13 to 17 of variable depth R of the heat-exchange grooves. The heat-exchange grooves 3 begin at 13 at the height of the molten metal level. The maximum groove depth 4 is reached at point 14. This maximum groove depth continues as far as point 15, and then the groove depth is reduced to the original level as point 16 is approached."

Figure 9 of the present application shows the local heat flux density/temperature in the flow direction of the mold. Also here the maximum heat flux density q_{max} or the maximum temperature T_{max} are shown in the region directly under the molten metal level. In adapting to the shape of the path of the local heat flux density the right side of Figure 9 shows the path of the local heat transfer of the cooling channel surface. This adapting takes place by variable number, form or depth of the cooling channel grooves.

JP '442 does disclose a mold wall with a cooling channel that has a larger cross-section in the region of the melt level. The cooling channel lying there-under has a smaller cross-section that does not change as a function of the height of the mold. This measure is only met for the purpose of slowly cooling the upper region of the mold and intensively cooling the lower region of the mold, JP '442 gives no disclosure of an adapting of the local heat transferring cooling channel walls to the local heat flux density, as in the presently claimed invention. JP '442 teaches away from the presently claimed invention since the reference has intensive cooling in the lower region of the mold whereas the present invention has less intense cooling in the lower region of the mold.

In view of these considerations it is respectfully submitted that the rejection of claims 1-5 under 35 U.S.C. 102(b) over the above-discussed reference is overcome and should be withdrawn.

Reconsideration and allowance of the present application are respectfully requested.

Any additional fees or charges required at this time in connection with this application may be charged to Patent and Trademark Office Deposit Account No. 11-1835.

Respectfully submitted,

By

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450 Alexandria, VA 22313-1450, on December 5, 2005.

By: _____ Date: December 5, 2005
Klaus P. Stoffel